

REMARKS

Claims 1-16 are pending in this application.

Rejection of Claims 1-3 under 35 USC § 103(a)

Claims 1-3 are rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653) and further in view of Ishikawa (US Patent No. 5,418,815).

The present invention teaches a method of processing a plurality of channels comprising the steps of "marking the selected channel as a digital signal **if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal**, marking the selected channel as an analog signal **if the intermediate frequency of the selected channel is similar to a nominal frequency for an analog signal**" and "storing information indicative of whether the selected channel is marked as a digital or analog channel" as recited by the current claim 1. (emphasis added)

It is submitted that none of the three references cited by the examiner even remotely suggest determining if a signal is analog or digital based on its nominal frequency. The examiner asserts that this feature is anticipated by Ishikawa et al. However, Ishikawa et al teaches a method of digitizing the input signal (Col. 13, line 45) and inserting identification flags into the digitized input signal to determine, after demodulation, if the original signal was an analog modulated signal or a digitally modulated signal. Ishikawa et al does not even discuss the nominal frequencies of the input signals, let alone use them to determine the type of signal received. It is submitted that none of the limitations of the invention recited in the current claim 1 are taught or suggested by Ishikawa et al.

Lee teaches a method of determining signal type by detecting vertical or horizontal synchronous signals or ghost cancellation reference signals. (Col 3, lines 1-9) Lee does not teach or suggest determining if a signal is analog or digital based on its nominal frequency.

Citta teaches a method of tuning signals in a multiformat environment by trying to tune the HDTV signal first, and if no HDTV signal is locked, the method attempts assumes the signal is an NTSC signal. (abstract) Citta does not teach or suggest determining if a signal is analog or digital based on its nominal frequency.

To establish a prima facie case of obviousness, the examiner must show suggestion or motivation to combine the references, reasonable expectation of success, and, that the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaack, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

It is submitted that the examiner has failed to establish a prima facie case of obviousness since none of the art cited suggests marking a selected channel as a digital signal if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal or analog if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal. Therefore, the invention, as recited by claim 1 is nonobvious in light of the cited art and therefore is allowable. Such action is respectfully requested.

As claims 2 and 3 are dependent on claim 1, it is respectfully submitted that these claims are allowable for the same reasons as discussed above with respect to claim 1.

Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta and Ishikawa showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claim 4 under 35 USC § 103(a)

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653) and Ishikawa et al (US Patent No. 5,418,815), as applied in claims 1 and 3 above, and further in view of Han (U.S. Patent No. 6,559,898 B1).

Han teaches a dual HDTV/NTSC receiver for recovering one of a HDTV signal and a NTSC signal coexisting in a desired channel. The invention includes a tuning unit for converting a desired one of HDTV signal and NTSC signals into an intermediate frequency (IF) signal, a sync detector, a timing recovery unit, and a controller for determining whether a currently received television signal is either an NTSC signal or an HDTV signal. Han teaches “a timing recovery unit, coupled to receive the intermediate frequency signal output from the tuning unit, for self-recovering symbol timing of the applied HDTV signal” (col. 2, lines 1-4). Han however, even when combined with Lee and Citta, neither discloses nor suggests a method “wherein the synchronization signals comprise a Carrier Lock signal and a Segment Lock signal” as disclosed in claim 4 of the present invention. The Carrier Lock signal is generated once phase lock occurs. “After sending the Carrier Lock signal, the symbol time recovery loop matches or phase-locks the baseband data stream for recovering a data symbol stream from the baseband data stream” as disclosed on page 5, lines 4-6 of the

description. Thus, the Carrier Lock signal is not synonymous with the “timing recovery unit” as described by the Examiner.

Additionally, Han, similarly to Lee, Citta and Ishikawa, neither discloses nor suggests “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal” as claimed in the amended claim 1 of the present invention. Thus it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta, Ishikawa and Han showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claim 5 under 35 USC § 103(a)

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653) and Ishikawa et al (US Patent No. 5,418,815), as applied in claims 1 and 3 above, and further in view of Citta et al. (U.S. Patent No. 6,559,898 B1).

Citta et al. (6,559,898) teach an encoder-modulator for coupling a digital baseband television signal to a VSB digital television receiver that includes filters, equalization circuitry, and forward error correction circuitry for correcting signal impairments that are below a given threshold. For terrestrial broadcasting, the data signal is randomized, subjected to Reed-Solomon type encoding for error correction, interleaved, Trellis encoded, multiplexed with segment sync and field sync, supplied

with a DC pilot; subject to pre-equalization filtering; modulated and RF upconverted for transmission.

Citta et al. (6,559,898 in any combination with Lee, Citta and Ishikawa, however, neither disclose nor suggest a method “wherein the error check signals comprise a Forward Error Correction (FEC) signal and a Reed Solomon Error Rate signal” as disclosed in claim 5 of the present invention. “The FEC module detects and corrects errors in the demodulated digital signal” as disclosed in the description of the present claimed invention. Thus, it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

Additionally, Citta et al. (6,559,898), similarly to Lee and Citta (5,283,653) and Ishikawa, neither disclose nor suggest “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal” as claimed in the amended claim 1 of the present invention.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta (5,283,653), Ishikawa, and Citta et al. (6,559,898) showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claims 6-7 under 35 USC § 103(a)

Claims 6-7 are rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653) and Ishikawa et al (US Patent No. 5,418,815) as applied in claim 1 above, and further in view of Shintani et al. (U.S. Patent No. 6,137,546).

Shintani et al. teach an autoprogrammer for a television receiver capable of receiving conventional analog channels and DTV channels. Conventional channels are identified and then skip channel data for each of the channels is stored in a memory. Subsequent executions of the autoprogram function map DTV channels. Skip channel data is entered in the memory for these additional DTV channels.

Shintani et al., similarly to Lee, Citta and Ishikawa, neither disclose nor suggest “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal” as claimed in claim 1 of the present invention. Thus, as claim 6 is dependent on claim 1 and claim 7 is dependent on claim 6, it is respectfully submitted that these claims are allowable for the same reasons as discussed above with respect to claim 1. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta, Ishikawa, and Shintani et al. showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claims 8-9 and 11 under 35 USC § 103(a)

Claims 8-9 and 11 are rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), and further in view of Kim (U.S. Patent No. 6,519,298 B1).

Kim teaches a circuit for discriminating between received signals. The circuit includes a detector for detecting a peak signal based on the degree of correlation between a received signal and a reference signal and a generator for generating a

discrimination signal showing that the received signal is a high definition signal if the peak signal is detected in a predetermined period; and showing that the received signal is a signal of an analog broadcasting method if the peak signal is not detected in the predetermined period.

Kim, similarly to Lee and Citta, neither discloses nor suggests “marking the received signals as a digital signal if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal and an analog signal if the intermediate frequency of the selected channel is similar to a nominal frequency for an analog signal” as recited in amended claim 8 of the present invention. Thus, it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

Additionally, Kim, similarly to Lee and Citta, neither discloses nor suggests “storing information about the type of channel for each of the plurality of channels into said memory unit” as claimed in the amended claim 8 of the present invention. Thus it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

As claims 9 and 11 are dependent on claim 8, it is respectfully submitted that these claims are allowable for the same reasons as discussed above with respect to claims 8. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta, and Kim showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claim 10 under 35 USC § 103(a)

Claim 10 is rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), Kim (U.S. Patent No. 6,519,298 B1) and further in view of Sugiyama (U.S. Patent No. 6,313,886 B1).

Sugiyama teaches an apparatus for tuning television channels that transmit either PSIP Transport Streams or non-PSIP Transport Streams. PSIP Transport Streams contain PSIP sections that include a major channel number and minor channel numbers, whereas non-PSIP Transport Streams do not contain such PSIP sections, but both PSIP and non-PSIP Transport Streams contain PAT sections. Sugiyama teaches separate analog video and audio processing circuits that processes the demodulated analog signals received from the analog demodulator.

Additionally, Sugiyama, similarly to Lee, Citta and Kim, neither discloses nor suggests "marking the received signals as a digital signal if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal and an analog signal if the intermediate frequency of the selected channel is similar to a nominal frequency for an analog signal" or "and storing information about the type of channel for each of the plurality of channels into said memory unit" as recited in the amended claim 8 of the present invention. Thus it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta, Kim, and Sugiyama showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claim 12 under 35 USC § 103(a)

Claim 12 is rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), Kim (U.S. Patent No. 6,519,298 B1) and further in view of Han (U.S. Patent No. 6,545,723 B1).

Han teaches “a timing recovery unit, coupled to receive the intermediate frequency signal output from the tuning unit, for self-recovering symbol timing of the applied HDTV signal” (col. 2, lines 1-4). Han however, neither discloses nor suggests a method “wherein the synchronization signals comprise a Carrier Lock signal and a Segment Lock signal” as disclosed in claim 4 of the present invention. The Carrier Lock signal is generated once phase lock occurs. “After sending the Carrier Lock signal, the symbol time recovery loop matches or phase-locks the baseband data stream for recovering a data symbol stream from the baseband data stream” as disclosed on page 5, lines 4-6 of the description. Thus, the Carrier Lock signal is not synonymous with the “timing recovery unit” as described by the Examiner. Thus it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

Additionally, Han, similarly to Lee, Citta and Kim, neither discloses nor suggests “marking the received signals as a digital signal if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal and an analog signal if the intermediate frequency of the selected channel is similar to a nominal frequency for an analog signal” or “storing information about the type of channel for each of the plurality of channels into said memory unit” as recited in the amended claim 8 of the present invention. Thus it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta, Kim,

and Han showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claim 13 under 35 USC § 103(a)

Claim 13 is rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), Kim (U.S. Patent No. 6,519,298 B1) and further in view of Citta et al. (U.S. Pat. No. 6,559,898).

Citta et al. when taken alone or in any combination with Lee, Citta and Kim, neither disclose nor suggest a method "wherein the error check signals comprise a Forward Error Correction (FEC) signal and a Reed Solomon Error Rate signal" as claimed in claim 5 of the present invention. "The FEC module detects and corrects errors in the demodulated digital signal" as disclosed in the description of the present claimed invention.

Additionally, Citta et al. (6,559,898), similarly to Lee, Citta (5,283,653) and Kim, neither disclose nor suggest "marking the received signals as a digital signal if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal and an analog signal if the intermediate frequency of the selected channel is similar to a nominal frequency for an analog signal" or "storing information about the type of channel for each of the plurality of channels into said memory unit" as recited in the amended claim 8 of the present invention. Thus it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta (5,283,653), Kim, and Citta et al. (6,559,898) showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claims 14-15 under 35 USC § 103(a)

Claims 14-15 are rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), and further in view of Sugiyama (U.S. Patent No. 6,313,886 B1).

Claim 14, similarly to claim 1, recites “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal; marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”.

Similar to the above argument for claim 1, none of Lee, Citta and Sugiyama disclose or suggest “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal” as claimed in claim 14 of the present invention. The present claimed invention repeats the selecting, receiving, digital channel marking, analog channel marking and storing steps during the autoprogramming mode until each of the plurality of channels have been selected. The motivation for marking the individual channels is to expedite tuning process. By marking each channel as analog or digital, the present claimed invention is able to reduce the time required for tuning a selected channel as the receiver does not have to detect whether the channel is analog or digital upon selection of the channel. In view of the above remarks regarding the rejection of claim 14, it is respectfully submitted that this rejection is satisfied and should be withdrawn.

To establish a prima facie case of obviousness, the examiner must show suggestion or motivation to combine the references, reasonable expectation of success, and, that the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and

the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

It is submitted that the examiner has failed to establish a prima facie case of obviousness since none of the art cited suggests marking a selected channel as a digital signal if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal or analog if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal. Therefore, the invention, as recited by claim 14 is nonobvious in light of the cited art and therefore is allowable. Such action is respectfully requested.

As claim 15 is dependent on claim 14, it is respectfully submitted that this claim is allowable for the same reasons as discussed above with respect to claim 14. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta, and Sugiyama showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claim 16 under 35 USC § 103(a)

Claim 16 is rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), Sugiyama (U.S. Patent No. 6,313,886 B1) and further in view of Shintani et al. (U.S. Patent No. 6,137,546).

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As claim 16 is dependent on claim 14, it is respectfully submitted that this claims are allowable for the same reasons as discussed above with respect to claim 14. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta, Sugiyama, and Shintani et al. showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Having fully addressed the Examiner's rejections, it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicant's attorney at the phone number below, so that a mutually convenient date and time for a telephonic interview may be scheduled. If any additional fee is due, please charge the additional fee to Deposit Account 07-0832.

Respectfully submitted,

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